

Odismatic[®] ***Hydraulic Filter*** **CE**

Series 851

Operator's Manual

Models

85107 (¾")

85101 (1")

85115 (1½")

85102 (2")

85103 (3")

85104 (4")

85106 (6")

85108 (8")



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ODIS takes all possible precautions in packing each equipment item to prevent damage during shipment. Carefully inspect each item, and if damage occurred, please report ODIS immediately.

TECHNICAL SPECIFICATION

General Data

Min. Working Pressure	1 - 2 bar	15 - 30 psi
Max. Working Pressure	10 bar	150 psi

For other working pressure consult **ODIS** representative.

SCREEN AREA AND RECOMMENDED FLOW RATES

MODEL	Inlet/Outlet diameter	Max. Flow rate		Flushing* Flow rate		Screen Area			
						Sintered		P.V.C. Housing	
	inch	m ³ /h	gpm	m ³ /h	gpm	cm ²	Inch ²	cm ²	Inch ²
85107	¾"	4	18	2-3	9-13	-----	-----	270	42
85101	1"	7	31	2-3	9-13	-----	-----	270	42
85115	1½"	15	66	4-5	17-22	600	100	450	70
85102	2"	25	110	4-5	17-22	600	100	450	70
85103	3"	40	170	4-5	17-22	1100	170	800	130
85104	4"	80	350	4-5	17-22	1100	170	800	130
85106	6"	150	660	8-10	35-44	4500	700	2900	450
85108	8"	300	1300	12-14	53-62	6200	960	4000	620

Duration of flushing for ¾" and 1" models: 6-8 seconds.

Duration of flushing for 1½", 2", 3" and 4" models: 8-12 seconds.

Duration of flushing for 6", 8" models: 14-16 seconds.

The max. flow rate refers to screens over 200 microns/less than 80 mesh
For a finer filtration degree consults our representative.

SCREEN GRADES*

Mesh	400	300	200	150	120	100	80	50	30
Micron	30	50	80	100	120	150	200	300	400

* Other screens are available.

MATERIAL

- Filter housing:** Carbon Steel, electrostatic powder coating
Optional: Stainless Steel.
- Filtration Screens:** Standard: Weave wire mesh - P.V.C supported.
Optional: Sintered multi-layer screen.
- Gaskets:** Natural Rubber
Optional: other material

CONSTRUCTION

The standard housing of the filter is made of carbon steel with a 100 micron protective coating of extra durable polyester, applied electrostatically and oven cured on a zinc-phosphate layer, for maximal anti-corrosion protection both internally and externally.

The unique design of the flushing chamber enables easy maintenance. Access to the internal parts of the filter is through the removable bolted cover.

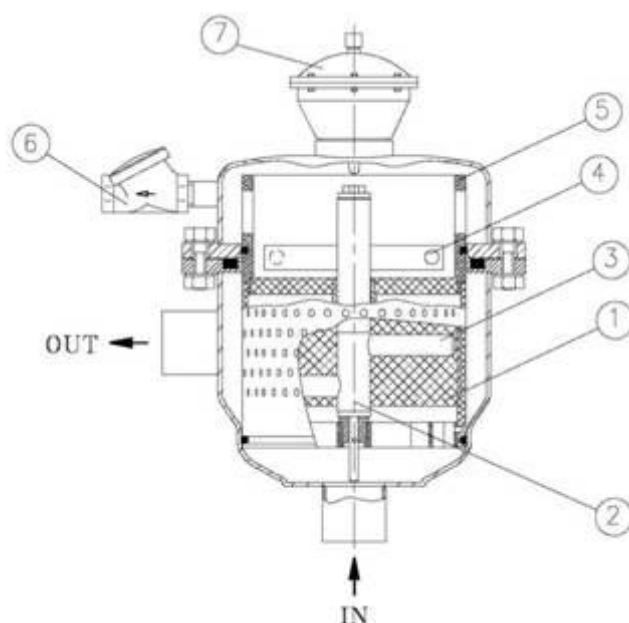
All immersed parts are made of either plastic materials or non-corrosive metals to ensure many years of trouble free operation.

Optional materials for special applications are available. Please contact *ODIS* representative.

On top of the filter a hydraulic piston is mounted. The piston performs a longitudinal movement of the collector assembly with the suction nozzles, in order to clean the screen on all its length.

Simultaneously the hydraulic motor rotates the collector assembly with the suction nozzles to clean the screen on its entire perimeter.

The two motions guarantee that the suction nozzles will cover the whole screen surface and the cleaning process will be effective.



1. Screen
2. Collector
3. Suction nozzle

4. Hydraulic Motor
5. Flushing Chamber

6. Flushing Valve
7. Piston

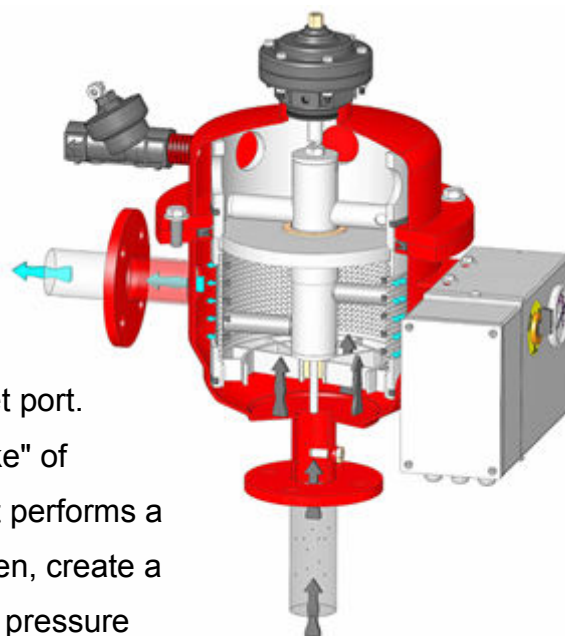
OPERATING PRINCIPLES

A. NORMAL FLOW PATTERN

Raw water enters the filter through the inlet port, passing through the fine screen (1) and out to the outlet port.

The sediments stopped on the screen (1) create a "cake" of sediment. This "cake" improves filtration efficiency as it performs a finer filtration. The sediments accumulated on the screen, create a differential pressure across the screen. The differential pressure rises until the predetermined value is reached [normally 0.5 bar (7.5 psi)].

A pressure switch gauge will activate the self cleaning process. A timer backup guarantees that the time passed from the last self cleaning process will not be longer than the preset value determined by the user.



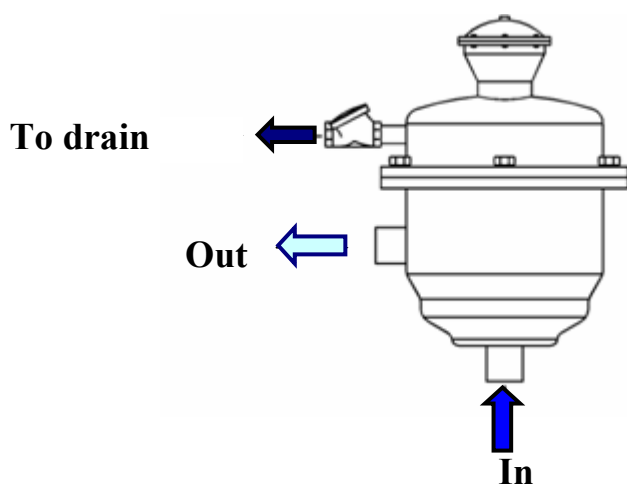
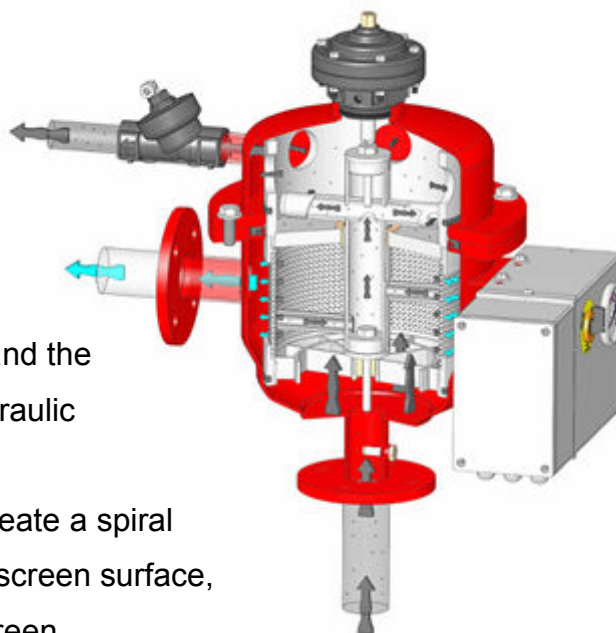
B. SELF CLEANING

On a flushing command, the flushing valve (6) opens to the atmosphere and creates pressure drop in the motor chamber (5), causing the dirt to be sucked in from the screen by the nozzles (3). This pressure drop also moves the piston (7) and the collector in a linear movement. In addition, the hydraulic motor (4) rotates the collector.

These two processes performed simultaneously create a spiral movement of the nozzles so they cover the whole screen surface, enabling complete and effective cleaning of the screen.

The entire process takes approximately 8 seconds, upon completion of the cleaning process the filter returns to its initial position.

This self cleaning flushing cycle can be initiated by DP switch, timer backup or manually.



INSTALLATION

- Install the filter only in vertical position.
- A pressure relief valve must be installed before the filtering installation if the pressure is not controlled effectively.
- Prevent back-pressure or reverse flow - install a mechanical non-return valve on the filter outlets.
- Ensure there is enough space around the filter for easy maintenance.
- Inlet and outlet are marked by an arrow.
- Connect a drain pipe to the flushing valve; pipe diameter should fit the valve diameter to prevent pressure loss.
- Check for leaks.

NOTE: Install isolation valves at inlet & outlet. These valves will enable to service the filter whenever needed, and in addition the outlet valve can be used to adjust the flow rate if needed.

FIRST COMMISSIONING AND ROUTINE START - UP

1. Check that the line pressure will always be at least 1 bar (15 psi) at the filter inlet during the flushing cycle.
2. Check that there are no upstream pipeline restrictions.
3. Check that the filter is mounted properly, as indicated by the arrows.
4. Check that the flushing valve is mounted properly.
5. Check that the tubing connections are completed.
6. Check that the flushing valve drain pipe is connected.
7. Check that the upstream and downstream isolation valves are closed.
8. Install batteries in the controller when using a DC controller. Or connect the controller to power source when using an AC controller.

NOTE: The differential pressure switch and timer have been preset to the proper settings. Do not adjust prior to start-up.

START - UP

1. Slowly open the inlet valve to the filter allowing the filter to pressurize.
2. Check for any leaks and eliminate.
3. Disconnect the control tube from the hydraulic piston and bleed it until all of the air is displaced by water. Reconnect the control tube.
4. Slowly open the outlet valve of the filter (if installed).
5. Initiate a manual flushing; observe the inlet and motor chamber pressures (use three way valve and manometer mounted on the control box).
The motor chamber pressure should be between 0.8-1.5 bar below inlet pressure during the flushing cycle.
Minimum inlet pressure during flushing cycle should be:
 - 1 bar (15 psi) for models ¾", 1", 1½", 2", 3" and 4".
 - 2 bar (30 psi) for models 6" and 8".
6. Observe the differential pressure's build up across the filter. It is recommended to observe at least one full cycle to ensure that the system is operating properly.

MANUAL FLUSHING PROCEDURES

Periodically, it may be necessary to activate a manual flushing cycle of the filter. Some typical reasons are:

- Routine inspection of proper filter operation.
- Emergency cleaning of the filter.
- Troubleshooting /start up.

The manual flushing is activated by depressing the "manual" button located inside the controller box in a DC model, and on the controller box in AC model.

SHUT-DOWN & DRAINING PROCEDURES

SHUT DOWN PROCEDURE

1. Close the isolating valve on the outlet of the filter (if equipped).
2. Initiate a manual flushing as described in section 5.
3. Close the isolating valve at the inlet of the filter
4. Initiate an additional manual flushing cycle to relieve the pressure from the filter.

DRAINAGE PROCEDURE

Prior to accessing the filter internal parts, it is necessary to drain the filter. Note that uncontrolled emptying of the filter may result an excessive water spillage in the area around the filter.

MAINTENANCE

- * Repair damage to the protective coating of the filter immediately.
- * Prior to applying the protective paint, clean the damaged spot thoroughly with a wire brush.
- * Every three (3) months lubricate the piston with lubrication grease “DOW CORNING® 4” or EQUAL.

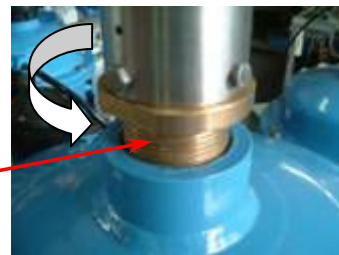
Piston lubrication is needed for ¾", 1", 3", 4", 6" and 8" filters only.

Warning: for lubrication use only “DOW CORNING® 4” or EQUAL. Using other lubrication grease will damage piston’s rubber parts.

Piston Lubrication

Depressurize the filter and disconnect the command pipes from the piston.

Dismantle the piston from the filter by unscrewing the piston out.



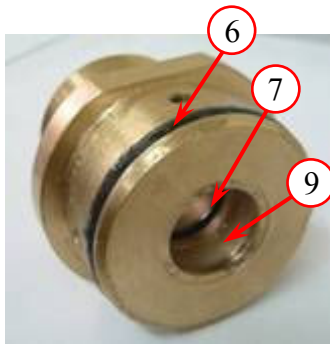
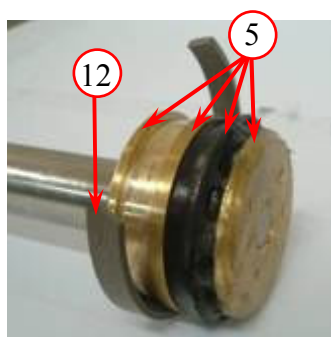
Screw out the bolts (1), and pull the front flange (2) out.

Note: do not screw out the rear bolts (3)

Pull the piston bar with the whole assembly (4) out of the cylinder.



Apply a thin layer of lubrication grease to following parts: (5), (6), (7) and (8).



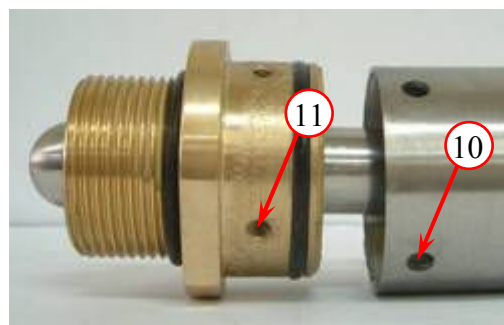
Fill the inner slot (9) with lubrication grease up to the slot edges.

Slide the piston (4) assembly into the cylinder; verify that leading strip (12) is placed in its slot. Slide the front flange (2) on the piston bar (4).

Align the screw holes on the cylinder (10) with the screw threads on the front flange (11). Screw the bolts (1), and gently tighten them.

Install the piston on the filter, and connect the command pipes back to the "TEE" fitting.

Check for water leakage during next operation and flushing process.

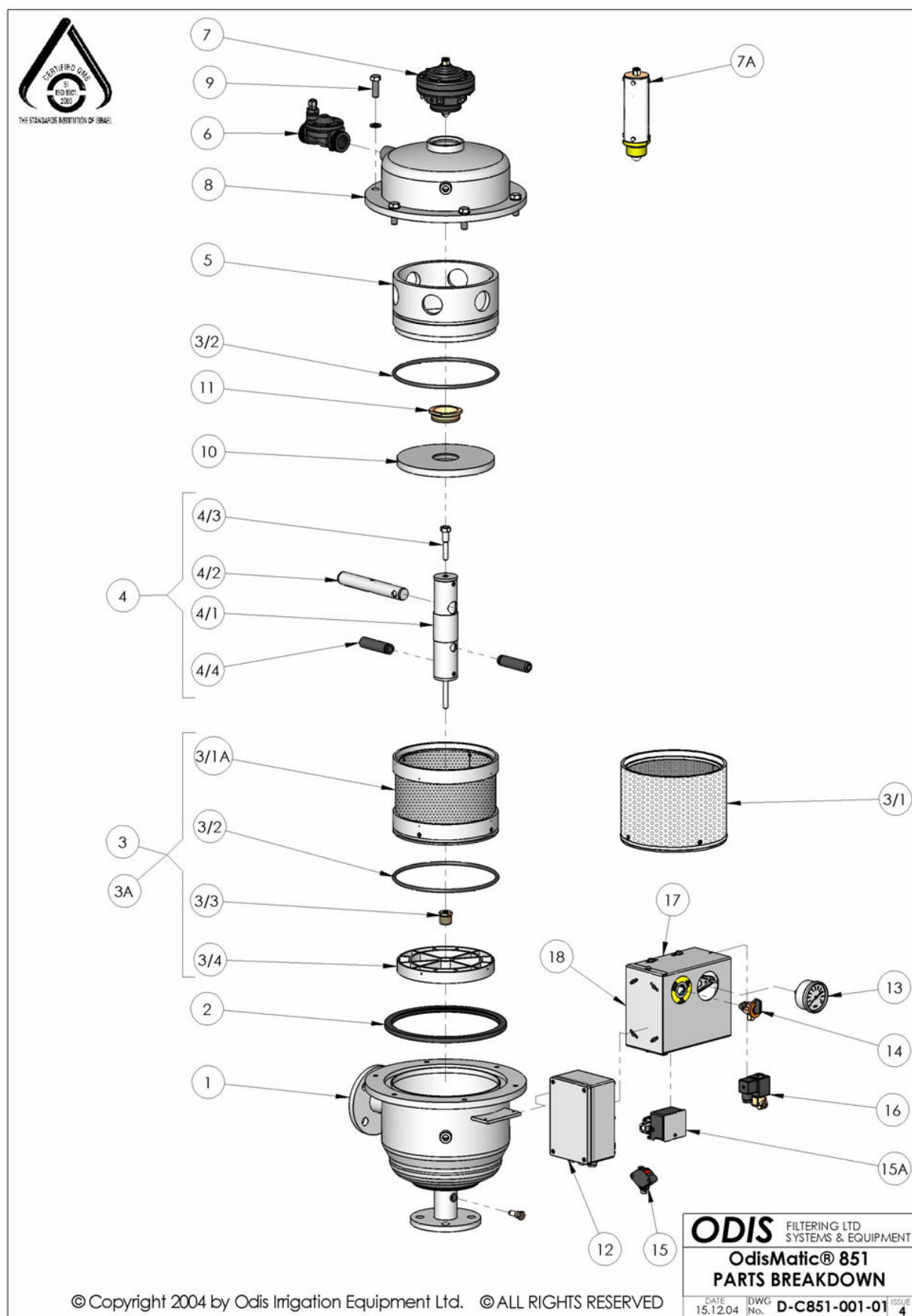


Odismatic® 851 (1½" - 8") Part List (refer to drawing D-C851-001-01 issue 4)

No.	DESCRIPTION	MODELS					
		85115 (1½")	85102 (2")	85103 (3")	85104 (4")	85106 (6")	85108 (8")
1	Filter body	A85115	A85102	A85103	A85104	A85106	A85108
2	Cover gasket	ER02004	ER02004	ER02004	ER02004	ER10033	ER10033
3	Fine screen Ass. – (P.V.C)	E8510204	E8510204	E8510404	E8510404	E8510604	E8510804
3-A	Fine screen Sintered – Ass.	E8510209	E8510209	E8510409	E8510409	E8510609	E8510817
3/1	Fine screen – PVC body	E8510206	E8510206	E8510406	E8510406	E8510606	E8510806
3/1-A	Fine screen Sintered	E8510205	E8510205	E8510405	E8510405	E8510616	E8510816
3/2	Seal	ER02025	ER02025	ER02025	ER02025	E8628000	E8628000
3/3	Upper Bearing	ER02075	ER02075	ER02075	ER02075	ER03077	ER03077
3/4	Fine screen handle	ER02093	ER02093	ER02093	ER02093	ER10016	ER10016
4	Dirt collector – Assembly	E8510202	E8510202	E8510402	E8510402	E8510602	E8510815
4/1	Dirt collector body	E8510203	E8510203	E8510403	E8510403	E8510613	E8510813
4/2	Hydraulic motor	E8510208	E8510208	E8510208	E8510208	E8510614	E8510614
4/3	Hydraulic motor locking bolt	E8510207	E8510207	E8510407ER			
4/4	Suction nozzle	ER8510402	ER8510402	ER8510402	ER8510402	ER8510602	ER8510602
5	Flushing chamber	E8510211	E8510211	E8510411	E8510411	-----	-----
6	Flushing valve	NB20501002T				NB20501501T	
7	Hydraulic piston	E8510212	E8510212	-----	-----	-----	-----
7A	Hydraulic piston	-----	-----	E8510412	E8510412	E8510612	E8510612
8	Cover	E8510201	E8510201	E8510401	E8510401	E8510601	E8510601
9	Bolt	L2912102035U				L2912102030U	
10	Bearing base	E8510413	E8510413	E8510413	E8510413	E8510618	E8510618
11	Lower Bearing	E8510414	E8510414	E8510414	E8510414	E8510619	E8510619
12	AC Controller	N5301101					
	DC Controller	N53102FT01-DP					
13	Pressure gauge	N6111025	N6111025	N6111025	N6111025	N6111025	N6111025
14	3 way valve selector	PM202500	PM202500	PM202500	PM202500	PM202500	PM202500
15	Differential pressure switch (electronic)	N.A	N.A	N.A	N.A	N.A	N.A
15A	Differential Pressure Switch	N6040	N6040	N6040	N6040	N6040	N6040

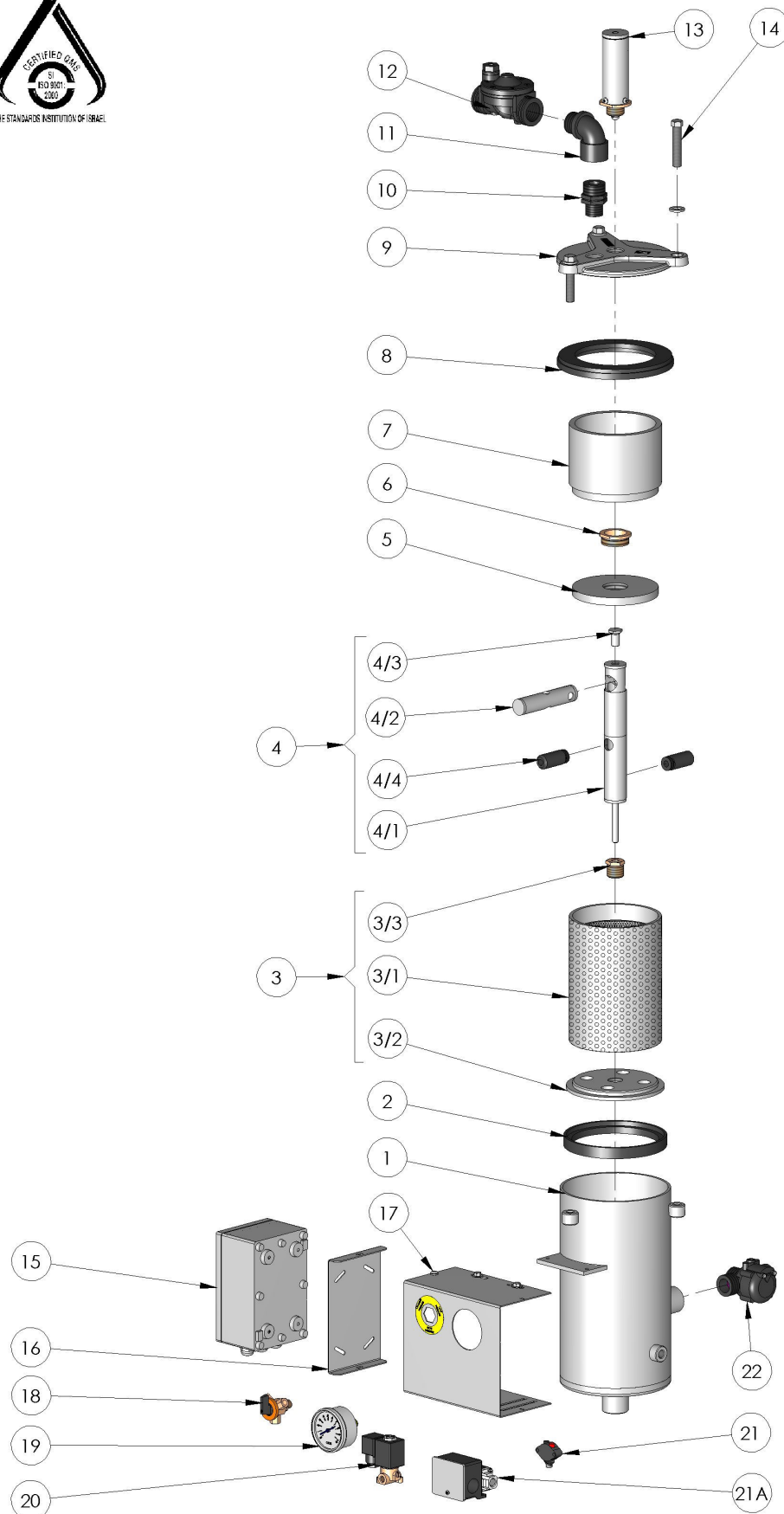
No.	DESCRIPTION	MODELS					
		85115 (1½")	85102 (2")	85103 (3")	85104 (4")	85106 (6")	85108 (8")
16	Solenoid valve AC	N512009-8W					
	Solenoid DC latch (2 wires)	NA	NA	NA	NA	NA	NA
	Solenoid DC latch (3 wires)	N512006	N512006	N512006	N512006	N512006	N512006
17	Pressure control box	Y8510201	Y8510201	Y8510201	Y8510201	Y8510201	Y8510201
18	Pressure control box side cover	Y8510203	Y8510203	Y8510203	Y8510203	Y8510203	Y8510203

Odismatic® 851 (1½" - 8") Parts breakdown



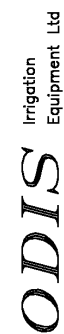
OdisMatic® - 851 (¾" - 1") Part List *(refer to drawing D-C859-001-02 issue 1)*

NO	DESCRIPTION	MODEL	
		85107 (¾")	85101 (1")
1	Filter body	A85107M	A85101M
2	Inner gasket	E000820	E000820
3	Fine screen Assembly	E8510104	E8510104
3/1	Fine screen	E8511006	E8511006
3/2	Fine screen handle	ER8511020	ER8511020
3/3	Lower Bearing	ER02075	ER02075
4	Dirt collector – Assembly	E8511002	E8511002
4/1	Dirt collector body	E8511003	E8511003
4/2	Hydraulic motor	E8511008	E8511008
4/3	Hydraulic motor locking bolt	E8511004	E8511004
4/4	Suction nozzle	ER8511002	ER8511002
5	Separating Disc (Upper Bearing base)	E8511013	E8511013
6	Upper Bearing	E8511014	E8511014
7	Flushing chamber	E8511011	E8511011
8	Cover gasket	E000920	E000920
9	Cover	E8511001	E8511001
10	Reducer ¾" x 1"-BSP	H0630710	H0630710
11	Elbow 90 x 1"- BSP	H91010BSP	H91010BSP
12	Flushing valve	NB20501002T	NB20501002T
13	Hydraulic piston	E8511012	E8511012
14	Bolt	L2912102060U	L2912102060U
15	AC Controller	N5301T2AC-11/22	N5301T2AC-11/22
	DC Controller	N53102FT01-DP	N53102FT01-DP
16	Pressure control box side cover	Y8510203	Y8510203
17	Pressure control box	Y8510201	Y8510201
18	3 way valve selector	PM202500	PM202500
19	Pressure gauge	N6111025	N6111025
20	Solenoid valve – AC	N512009-8W	N512009-8W
	Solenoid DC latch (2 wires)	NA	NA
	Solenoid DC latch (3 wires)	N512006	N512006
21	Differential pressure switch (electronic)	N.A	N.A
21A	Differential Pressure Switch	N6040	N6040
22	Outlet Valve ¾" x 1"-BSP	N700010	N700010



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ODIS FILTERING LTD SYSTEMS & EQUIPMENT		
OdisMatic® 859		
PARTS BREAKDOWN		
DATE 04.04.05	DWG No. D-C859-001-02	ISSUE 1



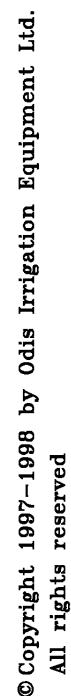
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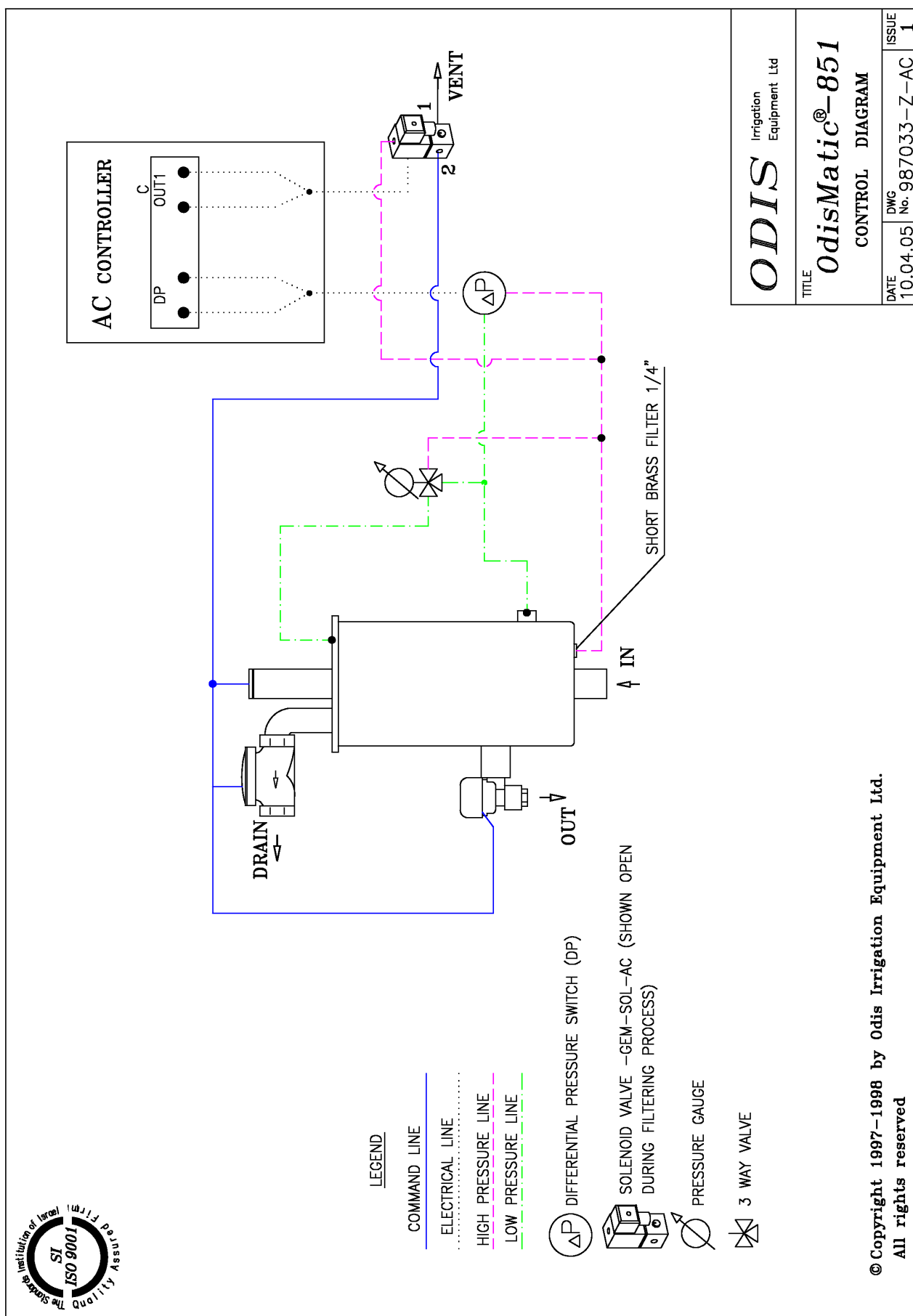
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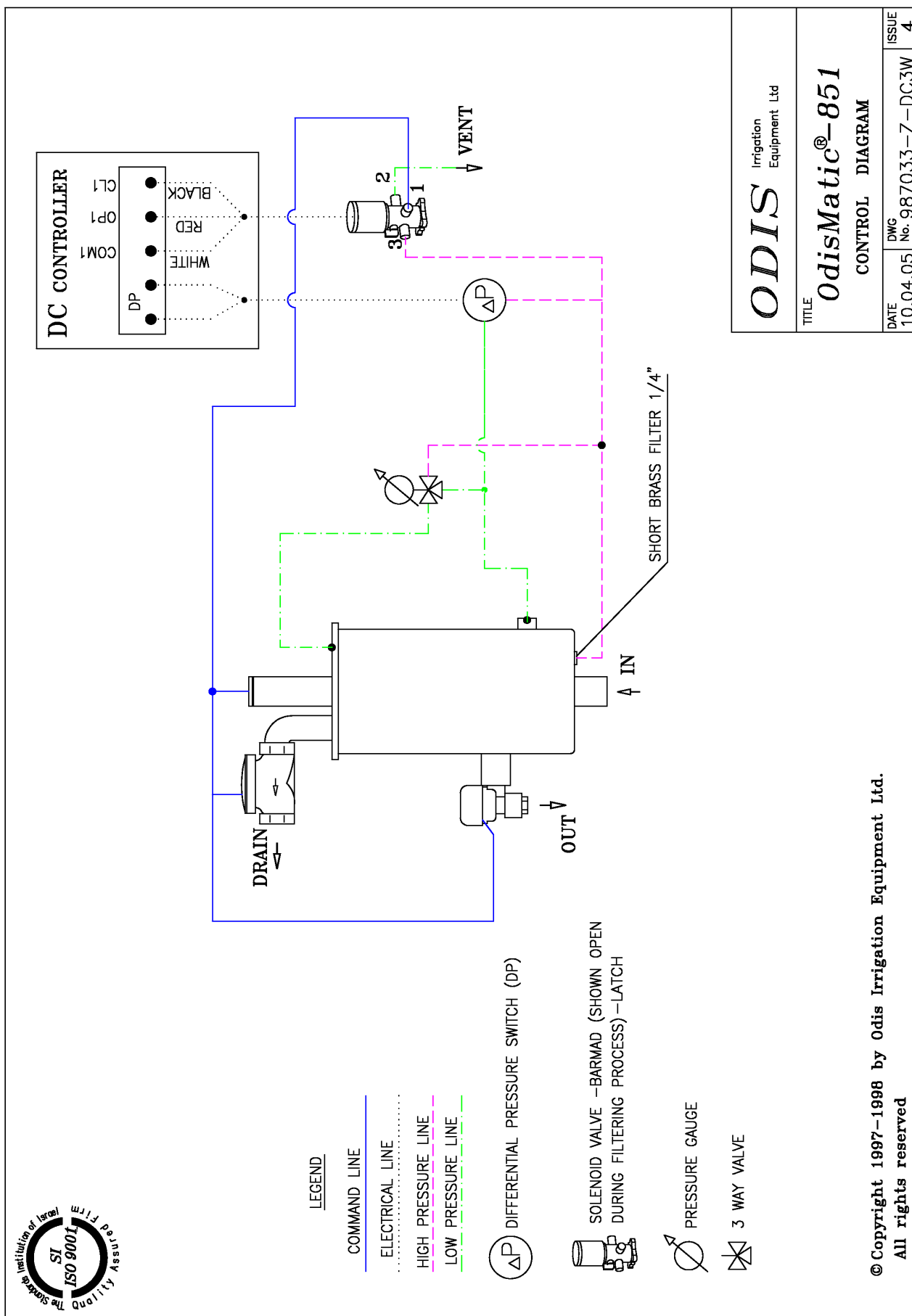
CONTROL DIAGRAM

DATE	DWG	ISSUE
26.09.05	No.987033-W-AC-ODP	5

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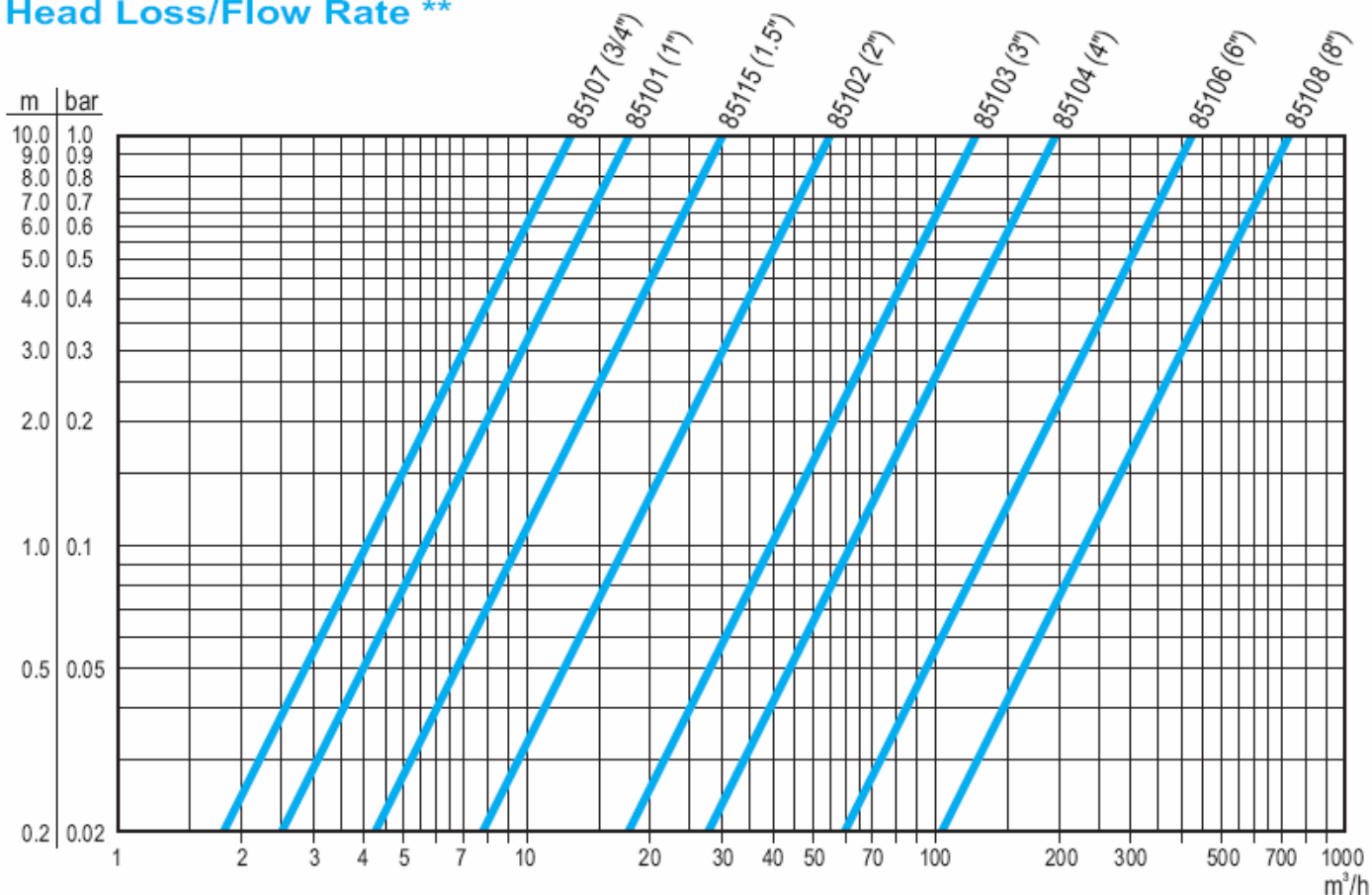






Head Loss / Flow Rate

Head Loss/Flow Rate **



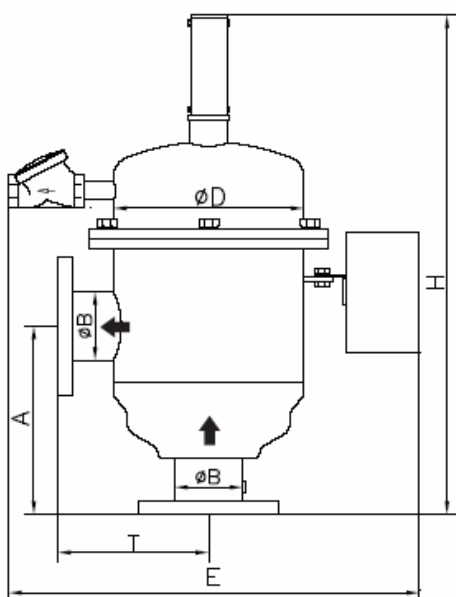
** For a clean filter and 120 mesh screen.

■ 1 bar=100 kPa=1.02 kg/cm²=10.2 m (W.C)=14.5 psi

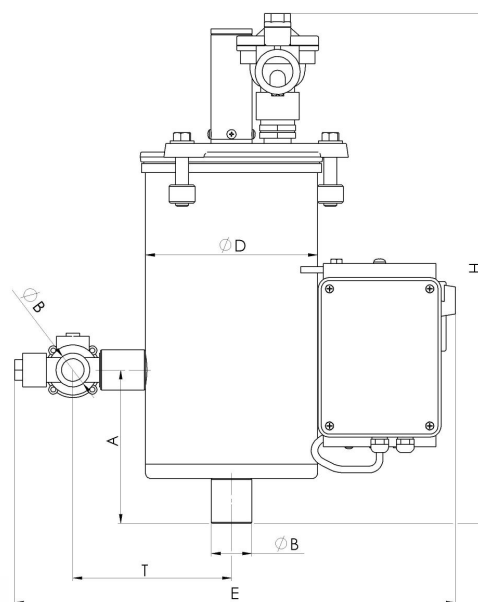
Dimensions & Weight

Model	B	D	A *		E *		H *		T *		Weight	
	inch	inch	mm	inch	mm	inch	mm	inch	mm	inch	Kg	lbs
85107M	¾	6	150	5.9	410	16	500	18	155	6.1	11	24
85101M	1	6	150	5.9	410	16	500	18	155	6.1	11	24
85115M	1½	10	188	7.4	540	21	500	18	175	6.9	25	55
85115F	1½	10	230	9.1	540	21	540	21	220	8.7	26	57
85102M	2	10	196	7.7	540	21	500	18	185	7.3	27	60
85102F	2	10	230	9.1	540	21	540	21	220	8.7	28	62
85103M	3	10	260	10.2	540	21	720	28	195	7.7	40	88
85103F	3	10	280	11	540	21	740	29	220	8.7	41	90
85104F	4	10	280	11	540	21	740	29	220	8.7	42	92
85106F	6	12	540	21.2	600	24	1310	52	320	12.6	65	143
85108F	8	12	700	27.6	600	24	1530	60	320	12.6	78	172

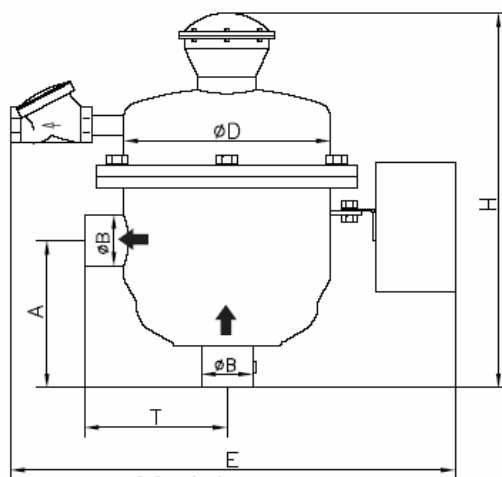
* For Victaulic connection decrease 5 mm from F model.



Models
85103, 85104,
85106, 85108



Models
85107, 85101



Models
85115, 85102

Odismatic® (Electric or Hydraulic Filter)

WARRANTY

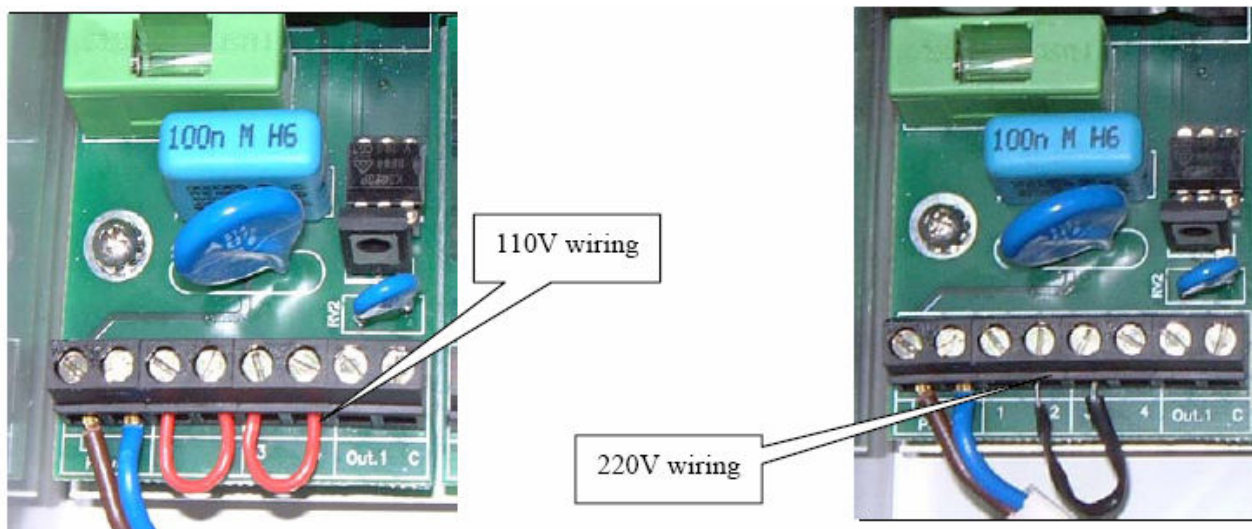
1. **During a period of Four (4) years** (“the Warranty Period”) which commences on the delivery date (F.O.B. – Israeli Port) - or up to two (2) years commences on the installation date, but in any case not more than the warranty period mentioned above, and subject to the provisions of this warranty, Odis shall remedy in the manner described below any defect in the equipment which results directly from Odis faulty materials or workmanship.
2. During the Warranty Period, Odis shall repair or replace any part of the Equipment found to be defective in manufacture, or, at its option, refund the portion of the purchase price attributable thereto. Such repair, replacement or refund is purchaser’s sole and exclusive remedy for defective Equipment. Without derogating from the generality of the foregoing, Odis liability shall be limited to the cost of materials and labor required for the repair or replacement or refund of the defective part.
3. Purchaser must notify Odis in writing of the claimed defect, including a detailed description of the defect. Such notice shall be submitted to Odis promptly and without any delay after the discovery of the defect.
4. Purchaser shall not attempt any repair or replacement of the Equipment other than in cases of emergency. In no case shall Odis be liable for the cost of such repairs or replacement carried out by the Purchaser.
5. Odis shall have no responsibility for defects in the Equipment to the extent caused by use other than as stated in Odis’ Operating Manual, misuse, abuse, or installation, maintenance, operation or repairs by the purchaser or by persons not under the supervision of Odis.
6. When a defect in a part of the Equipment has been remedied, the repaired or replaced parts shall be deemed to be part of the Equipment and Odis shall be liable for defects therein until the end of the Warranty Period. Any defective part which is replaced by Odis shall thereupon become Odis’ sole property.
7. Odis liability to defects in components of the Equipment which are not manufactured by Odis (including, but not limited to, computers, electrical boards, gaskets, gauges, valves, flow and turbidity meters) is limited to defects which results directly from faulty materials or workmanship, that are discovered within a period of 1 (one) year from the installation date, but in any case not more than the warranty period mentioned above.
8. The foregoing warranty is in lieu of all other warranties, expressed or implied, including, but not limited to any implied warranties of merchantability or fitness for a particular purpose.
9. In no event shall Odis be liable for any other damages whatsoever (including, without limitation damages for loss of business profit, business interruption, or other pecuniary loss) arising out of the use of or inability to use the equipment, even if Odis has been advised of the possibility of such damages .
10. In any case, Odis entire liability under any provision of this warranty shall be limited to the amount actually paid by the purchaser for the equipment .

FILTRON 1/2/3 (AC)

- ✚ The "FILTRON 1/2/3+DP" is a controller for flushing automatic filters of one, two or three stations.
- ✚ The controller is connected to external DP sensor (Differential Pressure sensor).
- ✚ The unit is equipped with a RESET button that when pushed generates a RESET signal and triggers a flushing cycle.
- ✚ The unit is equipped with two LED indicators, the green one indicates that the unit is energized and the red one indicates the operation statuses.
- ✚ Can be powered either by 110v AC or 220V AC. Activates solenoids of 24V AC.

110V or 220V powering

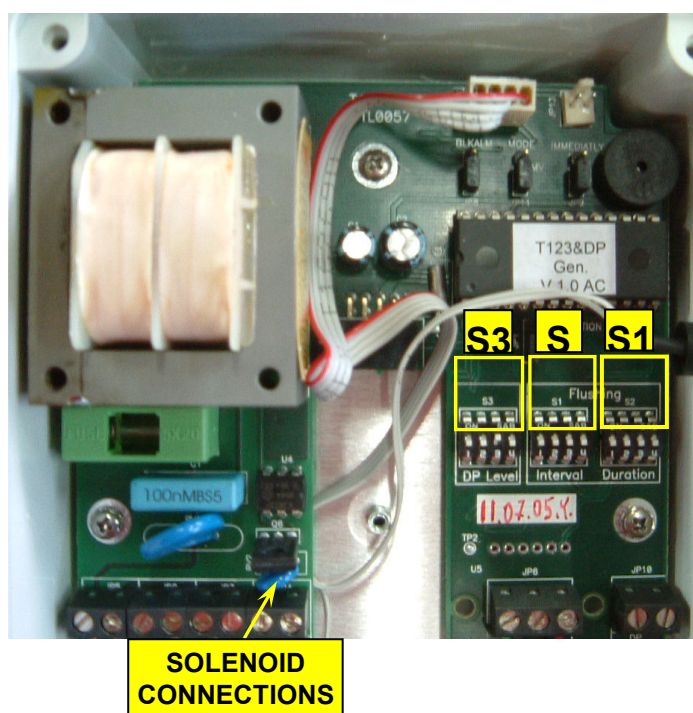
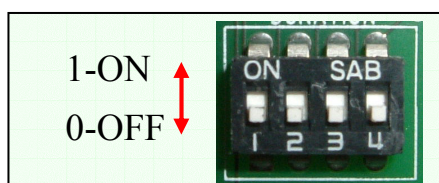
The following pictures show the difference in the wiring in case of powering by 110v or powering by 220V AC.



Setting the interval between cycles and the flushing time per station

Setting the interval between cycles and the flushing time per station is done through two blocks of dip switches S1, and S2.

The following table summarizes the various possibilities:



INTERVAL BETWEEN CYCLES		
1 – ON 0 – OFF	S1 1 2 3 4	meaning
01	0 0 0 0	DP only
02	1 0 0 0	5 min.
03	0 1 0 0	10 min.
05	0 0 1 0	20 min.
06	1 0 1 0	30 min.
07	0 1 1 0	45 min.
08	1 1 1 0	1 hour
09	0 0 0 1	2 hours
10	1 0 0 1	4 hours

FLUSHING TIME PER STATION		
1 – ON 0 – OFF	S2 1 2 3 4	meaning
01	0 0 0 0	5 sec.
02	1 0 0 0	8 sec.
03	0 1 0 0	10 sec.
04	1 1 0 0	12 sec.
05	0 0 1 0	16 sec.
06	1 0 1 0	20 sec.
07	0 1 1 0	25 sec.
08	1 1 1 0	30 sec.
09	0 0 0 1	45 sec.

Summary of the beeping sound indications

1 beep every 15 sec- normal operation

2 beeps every 15 sec- endless looping problem detected

NOTE: Push RESET button after fixing a problem or to initiate manual flushing.

THE RED LED BEHAVIOR	THE MEANING
Constantly ON	Waiting between cycles
Blinking once in a second	Flushing in progress
Blinking fast	DP problem, waiting between cycles
3 blinks per second	DP problem, flushing by time in progress
Double blink	While changing positions of the switches
LED is OFF	Problem with the controller

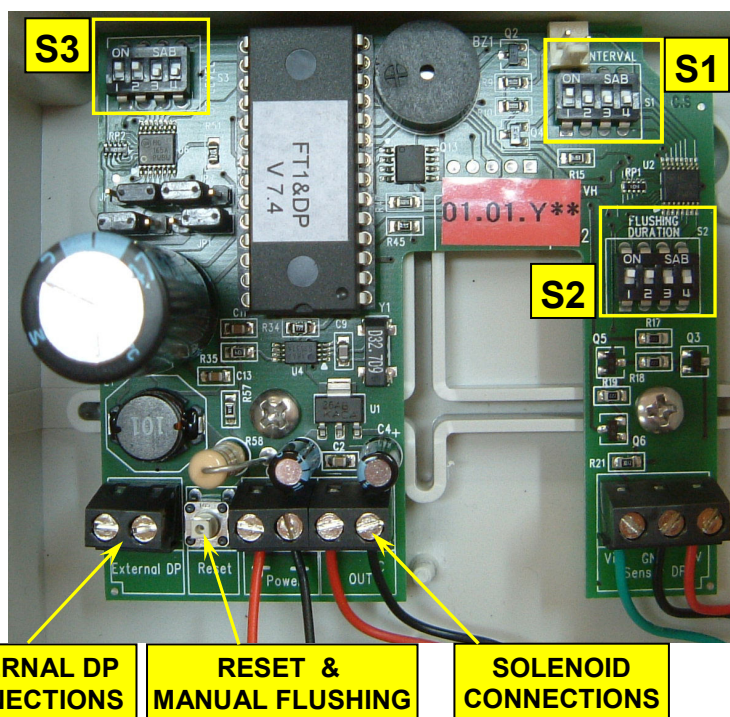
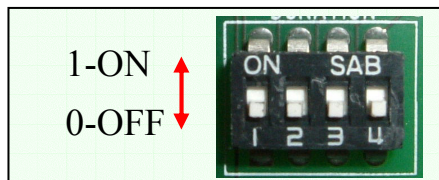
FILTRON FT1 DC

- ✚ The "FILTRON FT1&DP" is a controller for backflushing automatic filters of one station.
- ✚ The controller is connected to external DP sensor (Differential Pressure sensor).
- ✚ The unit is equipped with a RESET button that when pushed generates a RESET signal and triggers a flushing cycle.
- ✚ The unit activates 2 wired 12v DC latching solenoids.
- ✚ The controller is powered by 6v DC battery.

Setting the interval between cycles and the flushing time per station

Setting the interval between cycles and the flushing time per station is done through two blocks of dip switched S1, and S2.

The following table summarizes the various possibilities:

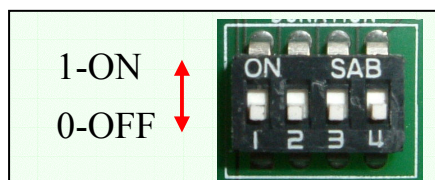


INTERVAL BETWEEN CYCLES		
1 – ON 0 – OFF	S1 1 2 3 4	meaning
01	0 0 0 0	DP only
02	1 0 0 0	5 min.
03	0 1 0 0	10 min.
05	0 0 1 0	20 min.
06	1 0 1 0	30 min.
07	0 1 1 0	45 min.
08	1 1 1 0	1 hour
09	0 0 0 1	2 hours
10	1 0 0 1	4 hours

FLUSHING TIME PER STATION		
1 – ON 0 – OFF	S2 1 2 3 4	meaning
01	0 0 0 0	5 sec.
02	1 0 0 0	8 sec.
03	0 1 0 0	10 sec.
04	1 1 0 0	12 sec.
05	0 0 1 0	16 sec.
06	1 0 1 0	20 sec.
07	0 1 1 0	25 sec.
08	1 1 1 0	30 sec.
09	0 0 0 1	45 sec.

Setting S3 dip switch block

Set the dip switch block S3 to "0 0 0 0" to disable the internal DP (not included)



Position No.	S3 (1-ON ; 0-OFF) 1 2 3 4	Set-point		
		meter	bar	psi
00	0 0 0 0	The internal DP sensor is not active		

Summary of the beeping sound indications

1 beep every 15 sec- normal operation

3 beeps every 15 sec- low battery

NOTE: Push RESET button after fixing a problem or to initiate manual flushing.

